

WHAT IS CLAIMED IS:

1 1. A method of monitoring fabrication performance, the method comprising:
2 calculating a planned quantity as an expected value that is to be fabricated on a first date
3 in accordance with a production plan;
4 calculating an actual quantity as an actual value that is fabricated on a second date; and
5 calculating a daily part index, wherein the daily part index represents a delta between the
6 planned quantity and the actual quantity divided by the planned quantity.

1 2. The method of claim 1, wherein planned quantity values are determined for a date
2 previous to a date corresponding to the actual quantity.

1 3. The method of claim 1, wherein the daily part index is determined in accordance with the
2 equation:

3

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$$PI_{D(p,t)} = \left[1 - \frac{\max \left[\left(\sum_{k=-1}^1 PQ_{(p,t+k-7)} - \sum_{k=-1}^1 AQ_{(p,t+k)} \right), 0 \right]}{\sum_{k=-1}^1 PQ_{(p,t+k-7)}} \right] \times 100\%,$$

5 wherein

6 $PI_{D(p,t)}$ is the daily part index of date t for product p ;

7 t is the date for which the daily part index is being calculated;

8 p is the product for which the daily part index is being calculated;

9 $PQ_{(p,t+k-7)}$ is the wafer out quantity sum of product p which is
10 planned to be finished on one week previous of date t according
11 to the production plan; and

12 $AQ_{(p,t+k)}$ is the wafer out quantity sum of product p which is actually
13 finished in date t .

1 4. The method of claim 1, further including the step of determining a weekly part index
2 based at least in part on the daily part index.

1 5. The method of claim 4, wherein only daily part index values greater than a first value are
2 used to calculate the weekly part index.

1 6. The method of claim 4, wherein the weekly part index is calculated in accordance with
2 the equation:

3
$$PI_{Wp} = \sum_{t=1}^m \frac{PI_{D(p,t)}}{m},$$

4 wherein

5 PI_{Wp} is the weekly part index for product p ;

6 p is the product for which the weekly part index is being calculated;

7 t is the date for which the weekly part index is being calculated;

8 $PI_{D(p,t)}$ is the daily part index of date t for product p ; and

9 m is the number of days in one week for which $PI_{D(p,t)}$ is valid.

1 7. The method of claim 4, further including the step of determining a site index based at
2 least in part on the weekly part index.

1 8. The method of claim 7, wherein the site index is calculated in accordance with the
2 equation:

$$SI_{Wf} \% = \frac{\sum_{t=1}^m PQ_{(p,t)} \times PI_{Wp} \%}{\sum_{t=1}^m PQ_{(p,t)}} ,$$

4 wherein

$SI_{Wf}\%$ is the site index for week W and fabrication site f ;

6 $PQ_{(p,t)}$ is the wafer out quantity sum of product p that is planned to
 7 be finished on dates t on which $PQ_{(p,t)}$ is valid; and

⁸ PI_{Wp} is the weekly part index for product p .

1 9. The method of claim 1, wherein the first date is the same date as the second date.

1 10. A method of monitoring fabrication performance, the method comprising:
2 calculating a planned quantity as an expected value that is to be fabricated on a first date
3 in accordance with a production plan;
4 calculating an actual quantity as an actual value that is fabricated on a second date; and
5 calculating a daily part index, wherein the daily part index represents a delta between the
6 planned quantity and the actual quantity divided by the actual quantity.

1 11. The method of claim 10, wherein planned quantity values are determined for a date
2 previous to a date corresponding to the actual quantity.

1 12. The method of claim 10, wherein the daily part index is determined in accordance with
2 the equation:

$$PI_{D(p,t)} = \left[1 - \frac{\max \left[\left(\sum_{k=-1}^1 PQ_{(p,t+k-7)} - \sum_{k=-1}^1 AQ_{(p,t+k)} \right), 0 \right]}{\sum_{k=-1}^1 AQ_{(p,t+k)}} \right] \times 100\%,$$

4 wherein

5 $PI_{D(p,t)}$ is the daily part index of date t for product p ;

6 t is the date for which the daily part index is being calculated;

7 p is the product for which the daily part index is being calculated;

8 $PQ_{(p,t+k-7)}$ is the wafer out quantity sum of product p which is
9 planned to be finished on one week previous of date t according
10 to the production plan; and

11 $AQ_{(p,t+k)}$ is the wafer out quantity sum of product p which is actually
 12 finished in date t .

1 13. The method of claim 10, further including the step of determining a weekly part index
2 based at least in part on the daily part index.

1 14. The method of claim 13, wherein only daily part index values greater than a first value
2 are used to calculate the weekly part index.

1 15. The method of claim 13, wherein the weekly part index is calculated in accordance with
2 the equation:

$$PI_{W_p} = \sum_{t=1}^m \frac{PI_{D(p,t)}}{m},$$

⁴ *wherein*

5 PI_{Wp} is the weekly part index for product p ;

p is the product for which the weekly part index is being calculated;

t is the date for which the weekly part index is being calculated:

$PI_{D(p,t)}$ is the daily part index of date t for product p ; and

⁹ *m* is the number of days in one week for which $PI_{D(p,t)}$ is valid.

1 16. The method of claim 13, further including the step of determining a site index based at
2 least in part on the weekly part index.

1 17. The method of claim 16, wherein the site index is calculated in accordance with the
2 equation:

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$$SI_{Wf} \% = \frac{\sum_{t=1}^m AQ_{(p,t)} \times PI_{Wp} \%}{\sum_{t=1}^m AQ_{(p,t)}},$$

4 wherein

5 $SI_{Wf} \%$ is the site index for week W and fabrication site f ;

6 $AQ_{(p,t)}$ is the wafer out quantity sum of product p that is actually
7 finished on dates t on which $PQ_{(p,t)}$ is valid; and

8 PI_{Wp} is the weekly part index for product p .

1 18. The method of claim 10, wherein the first date is the same date as the second date.

1 19. A computer program product for providing a method of monitoring fabrication
2 performance, the computer program product having a medium with a computer program
3 embodied thereon, the computer program comprising
4 computer program code for calculating a planned quantity as an expected value that is to
5 be fabricated on a first date in accordance with a production plan;
6 computer program code for calculating an actual quantity as an actual value that is
7 fabricated on a second date; and
8 computer program code for calculating a daily part index, wherein the daily part index
9 represents a delta between the planned quantity and the actual quantity divided by the planned
10 quantity.

1 20. The computer program product of claim 19, wherein the computer program code for
2 calculating the planned quantity determines the planned quantity for a date previous to a date
3 corresponding to the actual quantity.

1 21. The computer program product of claim 19, wherein the computer program code for
2 calculating the daily part index determines the daily part index in accordance with the equation:

$$PI_{D(p,t)} = \left[1 - \frac{\max \left[\left(\sum_{k=-1}^1 PQ_{(p,t+k-7)} - \sum_{k=-1}^1 AQ_{(p,t+k)} \right), 0 \right]}{\sum_{k=-1}^1 PQ_{(p,t+k-7)}} \right] \times 100\%,$$

4 wherein
5 $PI_{D(p,t)}$ is the daily part index of date t for product p ;
6 t is the date for which the daily part index is being calculated;

7 p is the product for which the daily part index is being calculated;

8 $PQ_{(p,t+k-7)}$ is the wafer out quantity sum of product p which is

9 planned to be finished on one week previous of date t according

10 to the production plan; and

11 $AQ_{(p,t+k)}$ is the wafer out quantity sum of product p which is actually

12 finished in date t .

1 22. The computer program product of claim 19, further including computer program code for

2 determining a weekly part index based at least in part on the daily part index.

1 23. The computer program product of claim 22, wherein only daily part index values greater

2 than a first value are used to calculate the weekly part index.

1 24. The computer program product of claim 22, wherein the computer program code for

2 calculating the weekly part index determines the weekly part index in accordance with the

3 equation:

$$4 \quad PI_{Wp} = \sum_{t=1}^m \frac{PI_{D(p,t)}}{m},$$

5 wherein

6 PI_{Wp} is the weekly part index for product p ;

7 p is the product for which the weekly part index is being calculated;

8 t is the date for which the weekly part index is being calculated;

9 $PI_{D(p,t)}$ is the daily part index of date t for product p ; and

10 m is the number of days in one week for which $PI_{D(p,t)}$ is valid.

1 25. The computer program product of claim 22, further including computer program code for
2 determining a site index based at least in part on the weekly part index.

1 26. The computer program product of claim 25, wherein the computer program code for
2 determining the site index determines the site index in accordance with the equation:

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$$SI_{Wf} \% = \frac{\sum_{t=1}^m PQ_{(p,t)} \times PI_{Wp} \%}{\sum_{t=1}^m PQ_{(p,t)}},$$

4 wherein

5 $SI_{Wf} \%$ is the site index for week W and fabrication site f ;

6 $PQ_{(p,t)}$ is the wafer out quantity sum of product p that is planned to
7 be finished on dates t on which $PQ_{(p,t)}$ is valid; and

8 PI_{Wp} is the weekly part index for product p .

1 27. The computer program product of claim 19, wherein the first date is the same date as the
2 second date.

1 28. A computer program product for providing a method of monitoring fabrication
2 performance, the computer program product having a medium with a computer program
3 embodied thereon, the computer program comprising
4 computer program code for calculating a planned quantity as an expected value that is to
5 be fabricated on a first date in accordance with a production plan;
6 computer program code for calculating an actual quantity as an actual value that is
7 fabricated on a second date; and
8 computer program code for calculating a daily part index, wherein the daily part index
9 represents a delta between the planned quantity and the actual quantity divided by the actual
10 quantity.

1 29. The computer program product of claim 28, wherein the computer program code for
2 calculating the planned quantity determines the planned quantity for a date previous to a date
3 corresponding to the actual quantity.

1 30. The computer program product of claim 28, wherein the computer program code for
2 calculating the daily part index determines the daily part index in accordance with the equation:

$$PI_{D(p,t)} = \left[1 - \frac{\max \left[\left(\sum_{k=-1}^1 PQ_{(p,t+k-1)} - \sum_{k=-1}^1 AQ_{(p,t+k)} \right), 0 \right]}{\sum_{k=-1}^1 AQ_{(p,t+k-1)}} \right] \times 100\%,$$

4 wherein

5 $PI_{D(p,t)}$ is the daily part index of date t for product p ;

6 t is the date for which the daily part index is being calculated;

7 p is the product for which the daily part index is being calculated;

8 $PQ_{(p,t+k-7)}$ is the wafer out quantity sum of product p which is

9 planned to be finished on one week previous of date t according

10 to the production plan; and

11 $AQ_{(p,t+k)}$ is the wafer out quantity sum of product p which is actually

12 finished in date t .

1 31. The computer program product of claim 28, further including computer program code for
2 determining a weekly part index based at least in part on the daily part index.

1 32. The computer program product of claim 31, wherein only daily part index values greater
2 than a first value are used to calculate the weekly part index.

1 33. The computer program product of claim 31, wherein the computer program code for
2 calculating the weekly part index determines the weekly part index in accordance with the
3 equation:

$$4 \quad PI_{Wp} = \sum_{t=1}^m \frac{PI_{D(p,t)}}{m},$$

5 wherein

6 PI_{Wp} is the weekly part index for product p ;

7 p is the product for which the weekly part index is being calculated;

8 t is the date for which the weekly part index is being calculated;

9 $PI_{D(p,t)}$ is the daily part index of date t for product p ; and

10 m is the number of days in one week for which $PI_{D(p,t)}$ is valid.

1 34. The computer program product of claim 31, further including computer program code for
2 determining a site index based at least in part on the weekly part index.

1 35. The computer program product of claim 34, wherein the computer program code for
2 determining the site index determines the site index in accordance with the equation:

3

$$SI_{Wf} \% = \frac{\sum_{t=1}^m AQ_{(p,t)} \times PI_{Wp} \%}{\sum_{t=1}^m AQ_{(p,t)}},$$

4 wherein

5 $SI_{Wf} \%$ is the site index for week W and fabrication site f ;

6 $AQ_{(p,t)}$ is the wafer out quantity sum of product p that is actually
7 finished on dates t on which $PQ_{(p,t)}$ is valid; and

8 PI_{Wp} is the weekly part index for product p .

1 36. The computer program product of claim 28, wherein the first date is the same date as the
2 second date.